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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GUIDO SCHMITZ, HARALD HAGER, and
HANS RIES

Appeal 2011-000663
Application 10/588,487
Technology Center 1700

Before TERRY J. OWENS, JEFFREY T. SMITH, and MARK NAGUMO,
Administrative Patent Judges.

OWENS, *Administrative Patent Judge.*

DECISION ON APPEAL
STATEMENT OF THE CASE

The Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1-20, which are all of the pending claims. We have jurisdiction under 35 U.S.C. § 6(b).

The Invention

The Appellants claim a multilayer composite. Claim 1 is illustrative:

1. A multilayer composite comprising the following layers:

I. an interior layer I selected from the group consisting of a fluoropolymer molding composition and a polyolefin molding composition;

II. a bonding agent layer II that has the following composition:

- a) from 0 to 80 parts by weight of a graft copolymer prepared using the following monomers:
 - from 0.5 to 25% by weight, based on the graft copolymer, of a polyamine having at least 4 nitrogen atoms and
 - polyamide-forming monomers selected from the group consisting of lactams, ω -aminocarboxylic acids and equimolar combinations of diamine and dicarboxylic acid;
- b) from 0 to 100 parts by weight of polyamide, and
- c) from 0 to 75 parts by weight of a polymer selected from the group consisting of fluoropolymers and polyolefins,

with the sum of the parts by weight of a), b) and c) being 100, and, in addition,

the sum of the components a) and b) comprising at least 20 parts by weight of monomer units based on 100 parts by weight of a), b) and c), derived from caprolactam and/or the combination hexamethylenediamine/adipic acid, hexamethylenediamine/suberic acid, hexamethylenediamine/sebacic acid, hexamethylenediamine/dodecanedioic acid, hexamethylenediamine/isophthalic acid or hexamethylenediamine/terephthalic acid and

- d) not more than 50 parts by weight of additives selected from the group consisting of impact-modifying rubber and auxiliaries and additives; and

III. a layer III comprising an EVOH molding composition, wherein layer II is between layer I and layer III.

The References

Böer	6,355,358 B1	Mar. 12, 2002
Jadamus	6,428,866 B1	Aug. 6, 2002
Schmitz	2002/0142118 A1	Oct. 3, 2002

The Rejections

Claims 1-20 stand rejected under 35 U.S.C. § 103 over Schmitz in view of Böer and Jadamus.

OPINION

We reverse the rejection. We need to address only the sole independent claim, i.e., claim 1. That claim requires that the recited bonding agent layer (II) is bonded to a layer selected from a fluoropolymer molding composition and a polyolefin molding composition.

Schmitz bonds an ethylene-vinyl alcohol copolymer barrier layer (layer II) to a molding layer comprised of a polyamide blend (layer I) (¶¶ 0002, 0012, 0014-24).

Böer uses a graft copolymer made from a polyamine and polyamide-forming monomers to bond together polymers which are compatible with the graft copolymer (col. 2, l. 48 – col. 3, l. 6; col. 5, ll. 35-40). The exemplified polymers bonded together are polyamides and polyesters (col. 5, ll. 40-45).

Jadamus bonds a layer comprising a thermoplastic molding composition, which can be a polyolefin, to an electrically conductive layer comprising a thermoplastic molding composition, which can be a polyolefin or a fluoropolymer, and graphite fibrils (col. 2, ll. 6-13, 20-28).

The Examiner argues (Ans. 8-9):

Schmitz, Boer and Jadamus are all directed to multilayer articles comprising polyamide suitable for fuel contact

applications. One of ordinary skill would have been motivated to include a fluoropolymer or polyolefin interior layer such as those disclosed by Jadamus in the multilayer article recited by Schmitz in order to increase the fuel barrier properties of the laminate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have adhered an additional barrier layer to the EVOH layer in the invention disclosed by Schmitz. This would have produced a laminate comprising the following layers: PA11, PA12, PA612, PA1012 and/or PA1212/ adhesive layer/ EVOH layer (ethylene content between 25 and 60 mol%)/ adhesive layer/ fluoropolymer or polyolefin layer.

The Appellants argue (Br. 6):

[T]he prior art neither discloses nor suggests that the embodiment of present bonding agent layer II when component c) is not present would bond a fluoropolymer or a polyolefin to EVOH. Nor does the prior art disclose or suggest the present bonding agent layer II when component c) is present, since no adhesive is disclosed that contains a fluoropolymer or a polyolefin.

The Examiner responds that “Boer provides the technique by which one of ordinary skill in the art would adhere a fluoropolymer or polyolefin layer to a laminate such as taught by Schmitz” (Ans. 11). In the Examiner’s view, “Boer evidences it was known in the art at the time the invention was made that the addition of a polymeric component compatible with or corresponding to the type of polymer the adhesive composition was intended to be bound to increased adhesion between the adhesion layer and the polymeric layer” (Ans. 7-8). Those arguments are based upon Böer’s disclosure that “[a] typical approach to bonding, for example polyester and polyamide layers, would be to use an adhesive promoter consisting of a mixture of polyamide and polyester” (col. 2, ll. 7-9) (Ans. 7).

Böer, as pointed out by the Appellants (Br. 6), follows that disclosure with (col. 2, ll. 10-16):

However, blends of this type, which are usually prepared by mixing the melts in an extruder, are very brittle. Corresponding coextrusion experiments in which the polyamide and polyester are bonded with such polyamide/polyester blend adhesion promoters either exhibit adhesion of the adhesion promoter to the polyamide or the polyester, but never to both of the two polymers simultaneously.

The Examiner does not explain how, in view of that indication by Böer that the use of a polyamide/polyester blend adhesion promoter is not effective for bonding a polyamide to a polyester, one of ordinary skill in the art would have used that technique even to bond a polyamide to a polyester, let alone to bond Schmitz's polyamide blend (layer I) to a different polymer than a polyester such as Jadamus' fluoropolymer or polyolefin.

For a *prima facie* case of obviousness to be established, the applied prior art must be such that it would have provided one of ordinary skill in the art with both a motivation to carry out the claimed invention and a reasonable expectation of success in doing so. *See In re Vaeck*, 947 F.2d 488, 493 (Fed. Cir. 1991); *In re O'Farrell*, 853 F.2d 894, 902 (Fed. Cir. 1988).

The Examiner has not addressed Böer's disclosure set forth above which indicates that a polyamide/polyester blend is ineffective for bonding a polyamide to a polyester and explained how, in view of that disclosure, one of ordinary skill in the art would have been motivated to add a fluoropolymer or a polyolefin to Schmitz's polyamide blend layer (I) to enable it to bond to a fluoropolymer or a polyolefin. Nor has the Examiner

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established that the applied prior art would have provided one of ordinary skill in the art with a reasonable expectation of success in bonding Schmitz's polyamide blend layer (I) to a fluoropolymer or a polyolefin in that manner.

DECISION/ORDER

The rejection of claims 1-20 under 35 U.S.C. § 103 over Schmitz in view of Böer and Jadamus is reversed.

It is ordered that the Examiner's decision is reversed.

REVERSED

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